

THE AMERICAN Railroad Journal.

ESTABLISHED 1831.

Steam Navigation, Commerce, Finance, Banking, Machinery, Mining, Manufactures.

SECOND QUARTO SERIES.—VOL. XXXVIII., No. 2.]

NEW YORK, JANUARY 14, 1882.

[WHOLE No. 2,386.—VOL. LV.]

Perpetuation of Testimony in Patent Suits.

A CASE in equity of considerable interest to patent lawyers, as well as to legal antiquarians, has been decided by Judge Benedict in the United States Circuit Court for the Eastern District. The complainant, it appears, has been infringing a certain patent owned by the defendant, and now files his bill in equity under section 866 of the United States Revised Statutes to have recorded in the court the testimony of a witness upon which the complainant alleges that he relies to show that the patent is void for want of novelty, in case a suit shall be brought against him by the defendant for the infringement. The witness is a very old man, and the complainant further alleges in his bill that the defendant is waiting for the witness to die before bringing his suit, so that the complainant may be deprived of the protection afforded by his testimony. On this ground he prays that the testimony may be recorded in perpetuum rei memoriam. The defendant demurred to the bill, and Judge Benedict, by the decision referred to, has overruled the demurrer. The interest of the case to patent lawyers arises from the fact that, so far as appears from the books, no such suit has ever before been brought in any case involving patent rights, nor, in fact, has any bill for the recording of testimony strictly in perpetuum rei memoriam ever been pleaded under the section of the Revised Statutes referred to. One of the points made upon the argument was that the bill ought to be dismissed because the complainant was able to obtain a full judicial settlement of his rights by inducing the Attorney-General to bring a suit in the name of the United States to annul or repeal the patent. But waiving the question whether such a suit could be brought in the name of the United States, Judge Benedict decides that the complainant has no power to bring such a suit, nor is it such a remedy as to deprive the complainant of his right to institute the present proceeding. Legal antiquarians will also find interest in the decision on account of the antiquated character of the procedure. In England at the present time, and generally in the United States, the subject of the perpetuation of testimony is regulated by special statutes giving a summary course of procedure for that purpose. The ancient practice of obtaining the same end by bill in equity survives only within the production of a few of the older States and of the Federal courts,

which still follow in these matters the English practice of the time of Lord Eldon. A curious feature of the practice is the taking of the testimony in perpetuum rei memoriam immediately after the cause is at issue, without waiting for the complainant to establish his right to do so by proof, an anomaly which Prof. Langdell in his summary of equity pleading thinks arose from confounding the testimony to be perpetuated with the testimony to establish the right to perpetuate it. If this explanation is correct, it furnishes a striking instance of the way in which the force of reason is sometimes overriden in law by the power of long-established usage. Richards & Heald, and Henry P. Starbuck, appeared for the complainant, and Goodrich, Deady & Platt, for the defendant.

The Barings.

THE Barings have been among the most famous of English bankers. They are of German stock. There is a kind of ecclesiastical flavor about them. Their English founder was a Bremen Pastor, who settled in this country. His grandson married the niece of an English Archbishop. One of his descendants became Bishop of Durham. The money was originally made in the rich, profitable clothing business in the West of England. Going into the old-fashioned church of the pleasant Devonshire town of Ashburton one day, we were greatly interested by the Baring monuments. Ashburton gave a title in the peerage to the chief of the house of Baring. It has been a rule in the house that when any one of them has got a title he goes out of the business. Sir Francis Baring, the first great banker, who, dying in 1810, left a fortune of two millions, had three sons—Thomas, Alexander, and Henry. Thomas succeeding to the baronetcy, gave up the business. Henry had rather a romantic reputation as a lucky gambler, who was frequently able to break the bank of a gambling-table. He was the amazement of beholders, when he would sit down at a gambling-table at the Palais Royal—before such tables were happily abolished—with piles of gold and notes before him. The reputation of a successful gambler was hardly suited to the intense respectability of the firm, and Mr. Henry was induced to retire from the business. Alexander Baring, often known as "Alexander the Great," sustained and extended the fortunes of the house. He went to America, there the richest banker in England, married the daughter of the richest

citizen of the United States. One of his gigantic transactions possesses a historical importance. After the conclusion of the great European war he paid down a sum of £1,100,000, by which France was freed from the occupation of Russian, Austrian and German armies. "There are six great powers in Europe," said the Duc de Richelieu—"England, France, Russia, Austria, Prussia, and Baring Brothers." In 1835 he was made Lord Ashburton. Two of his sons held the title, and each successively retired from the business. The head of the firm, Thomas Baring, became Chancellor of the Exchequer in Lord Melbourne's Ministry, and another member, Lord Northbrook, has been Governor-General of India.—*London Society.*

The Cable Railway.

No improvement has ever been made in the city of Chicago which has been regarded with as much interest as the cable railway which has been in course of construction on the South-side by the South-side Street Railway company during the last six months. Its near completion only adds to this interest, and it is asserted that the value of property along the line of the road and at the southern terminus has increased in proportion to the progress of the work. The construction of this new mode of transportation is the work entirely of the South-side company, the president, Mr. Holmes, having visited and studied the system thoroughly in San Francisco, upon which he made his report to the directory, that ordered him to adopt and perfect it at once. It has caused some bad feelings during the temporary abandonment of State street by the company, but now that the work is almost done and the people begin to understand the great expense involved and the blessings to come therefrom, they are beginning to take pride in it and long for its active operation. There are nine miles of road constructed in the most approved plan, steel rails having been used. This is an improvement over all other cable roads. The expense attached to building the road has been about \$2,000,000. The department of machinery and all of the mechanical appliances are acknowledged to be the best in the world, and in very many respects are decided improvements on other systems. One of the special features that has been especially commended is the large winders and sheaves; these are considered very important factors and are for the purpose of preventing crystallization of the

rope. The very best material has been used in the construction of the cables. An interesting study is the gripping device, which is claimed to be another improvement over any other cable system adopted heretofore. Special plans have been taken to prevent its wearing on the rope. The importance of this will be better understood by the public when the road will be in active operation. The grip-cars which have been constructed by the company are very artistic in their appearance. Forty-two of these have been built by the company. To these the ordinary street cars are attached. Some inquiry has been made as to the mode by which these cars will be stopped. Mr. Holmes says that by means of a very ingenious device which controls and manipulates the tension wheels no difficulty will be experienced in the stoppages, or trouble anticipated from the severity of the weather. In case snow or ice should obstruct the cable chain, such obstruction will be easily removed by means of a steam pipe heated for that purpose. The working of the machinery, it is claimed, creates no unpleasant noise to the ear. The starting or stopping will be milder than in the present system, all of the sudden checks or jerkings being avoided. The motion will be easy and uniform. In respect to rapid transit it will be a revolution in city travel, and a ride in one of the coaches over the bed road will become a luxury instead of a dread, as on the old system. The South-side company claims to be the first city railway in the world to adopt steel rails and the 21-foot car. The company announce that the cars are to be run with a special view to the comfort of the public. They propose that not only shall Chicago enjoy the system, but that it shall be run upon a principal which will reflect upon the city from abroad. The system has already created great interest abroad, the result being that capitalists from Eastern cities have already come to Chicago to see its workings. Mr. Holmes is very much opposed to the proposed change in the name of State street, inasmuch as he has that name ground in the class of all his cars. In regard to the date upon which the system will go into operation Mr. Holmes is not certain, but says it will be in the very near future.—*Chicago Times*.

Strength of Wooden Columns.

An extended account of his experiments at the Watertown Arsenal to test the strength of wooden columns was recently given before a meeting of the Society of Arts at Boston, Mass., by Prof. Lanza. The main results deduced were that wooden bolsters or caps at the top of the columns are a source of weakness, as was proved in an experiment where the bolster was crushed with a pressure of 20,000 pounds, while the column did not yield until 375,000 pounds were brought upon it; that the estimates of strength based upon formulas contained in the books are untrustworthy, as was proved when a column which by the formula should have withstood 8,000 pounds gave way at 4,000 pounds; that allowance must be made on account of eccentric pressure, that is, weight brought by the timbers of a heavily loaded floor upon one side of a column, not counter-

acted by corresponding weight upon the contiguous timbers of an unladen floor; that pintles are a source of weakness if not set square and true, whereby a rocking pressure may be brought upon the column; that the deflection or springing of a column is unimportant compared with weakness arising from a knot or crooked grain, and that the text books on mechanics need to be amended by having a new set of tables compiled from data obtained from experiments on full-sized timber, such as is used in building.

Mineral Wool.

ONE of the most striking illustrations of the possibilities of invention in turning waste substances into important articles of utility is seen in the conversion of the slag of iron smelting furnaces into mineral wool. Up to within a few years this slag was considered as a worthless incumbrance that was constantly increasing about the iron works premises, excepting as it was carted off to be used for roads, where it was only after a long amount of travel that it could be so ground up by the passage of horses and vehicles as to be considered desirable as a road bed. A few years ago however a process was discovered by which this waste was destined to be turned into an article of great practical value in numerous and widely varying directions. It was discovered that the slag while in a molten condition if penetrated forcibly by a jet of steam or compressed air, went through a most curious transformation, a result of which was the production of a fibrous article resembling wool in appearance. After considerable experimenting a process of manufacture was devised and patented, by which in a very simple manner the slag was changed into a product called mineral wool and in such perfection as to be ready for use immediately.

The experiments and improvements of the past few years have resulted in the process of manufacture as carried on now at Stanhope, N. J., which in brief is as follows: While the slag is still in a fluid state, it is allowed to fall in a small stream, from a suitable vessel, upon a jet of steam or compressed air, the effect of which is to disintegrate the molten slag, which cools as it is carried forward in the form of wool, resembling sheep's wool and cotton. The instantaneous separation causes a thread or fibre to be pulled out, which varies in length, thickness and color, according to the fluidity and composition of the slag. When gathered up, the fibres appear to lie in all possible directions with relation to each other, in consequence of which there is no parallelism or common direction to the threads, so that the air spaces are angular in shape and microscopic in size. The wool is collected in a large chamber, where it settles in a bulky state, having a fleecy appearance. About eighty per cent of the product has to be riddled, forming the ordinary grade, while the balance is separated by currents of air, and forms the extra grade.

The uses to which mineral wool has been successfully applied as a non-conductor of heat and a non-transmitter of sound are almost innumerable while new uses for it are constantly being discovered by mechanics, builders and scientists. The underlying principle of the application and utility of mineral wool is the one long established in physics, that air-confining or porous bodies are the poorest conductors, and that the passage of heat is retarded in proportion to the volume of air the insulating material holds from circulation. It is used on houses by applying a thickness of about two inches to the roof, to prevent the passage of the sun's heat in summer

and the escape of warm air from the house in winter; it is used in ice houses, about steam-pipes, in hotels, in car building and kindred purposes to a great extent and in the construction of fire proof rooms, it being absolutely fire proof and durable in contact with heated surfaces on account of its having no organic matter in its composition. The Health Commissioners of this city, at their conference with the master plumbers last November strongly recommended as a sanitary precaution that boilers, ranges hot and cold water supply pipes in exposed places be packed with mineral wool and properly cased in. An idea of the cheapness of the wool is seen in the fact that the cost of a filling two inches thick for 100 square feet of surface (416 lbs) is only \$4.16 for the ordinary grade at the works. About 3,000,000 pounds of this useful and economical article are now in use, and the United States Mineral Wool Co. at their office 16 Courtland St., have many valuable references as to the satisfactory results attending its extended adoption.

English Locomotives in America.

ENGLISH engineers will be somewhat surprised to learn that the order has been obtained in the country for a considerable number of American locomotives for railways in America. They are now being built from the designs and instructions of Mr. James Cleminson, M.I.C.E., Westminster, by a leading North of England firm, and are on the true American type, as represented in Baldwin's America, Mogul, and consolidation classes, though some slight modifications are made in the arrangement of the compensating beams. The system of compensation is carried out completely, so that the wheels must bear with full weight on any road, just as the speculum of a large telescope is supported on Lord Rosse's or Grubb's system of connected levers. It is expected that the engines will show what can really be done by locomotives on the American type built on the best English methods and workmanship, and we shall probably learn how much truth there is in the oft repeated statement that American locomotives will haul a greater load, weight for weight, and cylinder for cylinder, than those of the English type.—*London Engineer*, Dec. 10.

A Wild Texas Charter.

CHARTERS for private corporations or profit can be had by simply preparing and filing them after paying the fee fixed by law in the State Department. It is reported that a charter for a narrow-gauge railway to every point in Texas has been recently filed. It calls to mind a story told by Swift of a country parson in England who was given to the use of very strong language for one of his cloth. His clerk, who was allowed to use his own discretion in the selection of the hymn with which the services were opened, had already on several successive Sundays commenced with the one beginning: "All people that on earth do dwell." When he read it out again on another Sunday the parson was heard in a suppressed voice to exclaim: "—all people that on earth do dwell!" which, says Swift, was the most comprehensive anathema of which he had ever heard.—*Austin (Texas) Siftings*.

THE Syndicate have undertaken the construction of the Vancouver Island Railway.

AMERICAN Railroad Journal

ESTABLISHED 1881.

PUBLISHED WEEKLY BY THE
AMERICAN RAILROAD JOURNAL CO.,

At 23 Liberty Street, New York.

Subscription, per annum, in advance..... \$5 00
Foreign Subscription, including postage..... 6 00

Purchases for the AMERICAN RAILROAD JOURNAL CO. are authorized only by the written order of Geo. F. Swain, Treasurer; and the Company will not be responsible for the payment of bills unless accompanied by such order.

Subscribers are requested to report to our office any irregularity in receiving the JOURNAL.

Contributed articles relating to Railroad matters generally, Mining interests, Banking and Financial items, Agricultural development, and Manufacturing news, by those who are familiar with these subjects, are especially desired.

Payments for advertising and subscriptions should be made by check payable to order of the Treasurer.

BRANCH OFFICE:
53 Devonshire St., Boston, Mass.

Mr. FREDERIC ALGAR, Nos. 11 and 12 Clements Lane, Lombard Street, London, E. C., England, is the authorized European Agent for the JOURNAL.

New York, Saturday, January 14, 1882.

Entered at the Post Office at New York City as Second-Class
Mail Matter.

RAILROAD COMMISSIONERS AND RAILROADS IN CONNECTICUT.

IN few States has the utility of a well constituted Board of Railroad Commissioners been better illustrated, or the duties of these officers more satisfactorily performed, both in the estimation of the railroad managers, the people and those outside of that State, who have been interested in suggestions arising there, and in measures adopted after their examination and recommendation, than in Connecticut. Being one of the first States to establish such a commission, Connecticut has been looked to as one of the prominent localities from which should emanate many ideas, tending to improve the relations between the railroads and their employees, and the people, and to be of practical value to railroad managers themselves, in varied details connected with the workings of their roads. The Commissioners of that State, have done a vast amount of work within the past few years, in giving careful hearings and practical tests to theories, complaints and suggestions placed before them, the results of which are conspicuous among the improvements adopted, and conclusions generally accepted in railroad circles. And this work, while persistently prosecuted, has been accomplished in such a manner as not to create the disturbance and unpleasant relations, which unfortunately have been witnessed in other localities between commissioners

and those with whom their duties have brought them in contact.

An important reason which has conduced to this desirable result, is that the people of Connecticut have not deemed it best to confer excessive power upon their Commissioners, in regard to such questions of transportation, as form so large a part of the duties of similar officers in other States; those aiming to enforce measures judicious, or otherwise, for the suppression of alleged opportunities for unjust discrimination and exaction. Connecticut, to be sure, is not a field where complaints about discrimination would be expected in any such extent, as in States where there were special motives for favoring certain localities and parties, where a hot rivalry existed as to the development of certain seaports or markets. Situated between New York and Boston, and having no rival seaport of her own, Connecticut can turn to either of these great markets with about equal facility and avail herself of such advantages as either may choose to offer, prospering with the prosperity of both, and enjoying the effect of their rivalry without serious, local disturbance, or inconvenience to herself.

The ownership of Connecticut railroads is peculiarly local, as is the management, the roads being owned and managed largely by people living in the sections through which they pass. On this account it is possible to lay complaints which arise promptly before the railroad managers themselves, instead of before their representatives, in which way, by personal communication, the cause for complaint can be clearly understood and rectified, and frequently their unreasonableness readily and satisfactorily demonstrated, without the tedious and annoying delays of red tape required when the officers of the road are far removed and not interested in the local affairs along their lines. The manufacturing, commercial and agricultural interests of Connecticut, are peculiarly fortunate in that the roads of their State are so largely under home management and ownership, and the Commissioners thereby are relieved from duties which would interfere with their important work pertaining to other practical matters.

But the success which has attended the work of the Connecticut Railroad Commissioners and the desirable position maintained by them in the estimation of

similar Boards and the general public, while greatly assisted by the conditions mentioned, are largely due to the great pains taken to apply to the practical questions brought before them the most careful consideration and such tests as would be considered reasonable and just by experienced railroad men. They have been better enabled to do this on account of the wisdom which placed upon the Board as one of its active members, a man who has been all his business life a practical railroad man. An illustration of this manner of working, is seen in the course pursued in the matter recently agitated in that State concerning the enactment of a law, requiring railroads to adopt a safety car-coupler. A bill to this effect was last year referred by the Connecticut Legislature to the Commissioners with instructions to report upon the subject this year. Accordingly a public investigation was held at the Commissioners office in November last for two days, after liberal announcements concerning the same, at which a variety of patents were submitted and examined. This investigation was supplemented by further examinations and by personal inquiry of railroad men, in various positions and in different parts of the State. We have briefly referred to some of the causes which resulted so admirably in regard to the relations established by this particular Board of Commissioners between themselves, the people, the railroads and their employees, believing that some of these causes hinted at, might be utilized to advantage in the organization of similar Boards in other localities. As an illustration of an unprejudiced opinion, we conclude by quoting from their recommendation concerning the car-coupling question, which, with the addition of the recommendation of some simple and cheap method of improving the couplers of old cars was as follows:—

"We would therefore recommend the enactment of a law requiring that all freight cars hereafter bought or built by the corporations operating railroads in this State, shall be equipped with automatic couplers, the draw-bars of which shall be at the uniform height which has been recommended by the master car-builders, and with dead-blocks sufficiently thick to give not less than one foot clear space between the cars, when the blocks come together, and that similar draw-bars and couplers should be made

use of in all renewals. If it is objected that this is a half way measure, we answer, that is just what it is intended to be. To require our companies to substitute, at once, automatic couplers for those now in use on their more than eight thousand freight cars would, in our judgment, be imposing an unreasonable burden of expense."

GOSHEN SUPERHEATING SAFETY BOILER.

THE Goshen Foundry and Gas Machinery Co., are receiving most satisfactory results from the practical tests which have been given of late, to their Goshen Superheating Safety Boiler, patented last spring. Some of these boilers in actual use, have effected a saving of 20 per cent, and upwards, in fuel over boilers replaced by them. Seven hundred and fifty pounds of coal is considered to be the consumption required for running a 40 horse power engine, averaging from 60 to 70 pounds of steam, for 12 hours with this boiler, which evaporates 15 pounds or more of water, to one pound of coal. Some of the peculiarities and advantages of the boiler are, that each section of 5 horse power is separate and can be removed for repairs without interfering with the other parts of the boiler; that it generates dry steam, is non-explosive and has a remarkably large heating surface, and also a very small grate surface. At the company's office, 37 Dey street, under the charge of Mr. Benj. Hornor, General Agent, can be obtained further information concerning what the valuable improvements possessed by the Goshen boiler have accomplished and illustrated, in the way of economy and durability.

Mica Masks.

A WELL-KNOWN German manufacturer of mica wares, Herr Raphael, of Breslau, now makes mica masks for the face which are quite transparent, very light and affected neither by heat, nor by acids. They afford good protection to all workmen who are liable to be injured by heat, dust or noxious vapors; all workers with fire, metal and glass melters, stonemasons, etc. In all kinds of grinding and polishing work the flying fragments rebound from the arched mica plates of the mask without injuring them. These plates are fixed in a metallic frame, which is well isolated by means of asbestos, so as not to be attacked by heat or acid. These masks allow the turning of the eyes in any direction, and, as against mica spectacles, they afford the advantage of protection to the whole face. In certain cases, the neck and shoulders may also be guarded by a sheet of cloth impregnated with fire-proof material, or by asbestos

sheet, attached to the mask. The interval between the mica and the eyes allows of workmen who have poor eyesight wearing spectacles, and of workers with fire or in melting operations wearing colored glass spectacles under the mask, without fear of breakage of the glass, mica being such a bad conductor of heat. Where the mask has to be worn long it is found desirable to add a caoutchouc tube with mouth-piece for admission of fresh air; the tube passes out to the shoulders, where its funnel-shaped end (sometimes holding a moistened sponge) is supported. The mask has a sort of cap attached to it for fixture on the head.

PERSONAL.

EX-POSTMASTER GENERAL JAMES has assumed the duties of his new position as president of the Lincoln National Bank.

JUSTICE GRAY was sworn in on the 9th inst., and took his seat on the bench of the United States Supreme Court, at Washington.

GEORGE SKINNER has been appointed Superintendent, and Joseph Robinson Treasurer and Assistant Superintendent of the Scioto Valley Railroad.

JAMES D. SMITH, of Stamford, Conn., has been appointed by the Governor, State Treasurer, in the place of David P. Nichols, deceased.

WM. C. EGLESTON, of this city, has been elected a director of the Cleveland and Pittsburgh Railroad Company, in the place of F. T. Walker, deceased.

BENJAMIN F. NEWCOMER has been elected a director of the Philadelphia, Wilmington and Baltimore Railroad Company, in the place of Samuel Harlan.

FRANK M. BARKER has been appointed to engineer the survey of 70 miles of road which is to be built from Corry, Pa., to Buffalo. His headquarters will be at Erie.

ISAAC HINCKLEY has been re-elected president; A. J. Cassatt, vice president, and Robert Craven, treasurer of the Philadelphia Wilmington and Baltimore Railroad Company.

DR. JOHN W. DRAPER, author of "Intellectual Development of Europe," history of "American Civil War," and "Conflict between Science and Religion," died on the 4th inst., aged 71, at his home, Hastings-on-Hudson, N. Y.

JOHN C. GAULT has been appointed second vice president and general traffic manager of the Wabash system, with Robert Andrews, general superintendent; and W. F. Merrill, as his assistant. The ticket and freight departments have been placed under the charge of H. C. Townsend and H. C. Bird respectively.

CHARLES W. CASE has been appointed superintendent of the Hastings and Dakota Division, of the Chicago, Milwaukee and St. Paul Railway, with headquarters at Minneapolis, Minn.; Fred D. Underwood, superintendent of the Southern Minnesota Division, with headquarters at La Crosse, Wis.; Henry R. Wilson, superintendent of the Iowa and Minnesota Division, with headquarters at Minneapolis, Minn.; John Jackson, superintendent of the Sioux City and Dakota Division, with head-

quarters at Sioux City, Iowa. George W. Sanborn continues as superintendent of the Iowa and Dakota Division and branches, with headquarters at Mason City, Iowa. N. Monsarrat has resigned the position of general superintendent of the Chesapeake, Ohio and Southern Railroad, to become general superintendent of the Cleveland, Akron and Columbus Railroad.

JOHN G. MOTLEY has been appointed superintendent of the Southern Division of the Mobile and Ohio Railroad.

ENGINEER John M. Unglaub who had charge of the engine of the train on the Baltimore and Potomac Railroad, conveying ex-President and Mrs. Hayes, and family from Washington, on the 5th of March, 1881, which was run into by an extra train going South, and who stood so manfully at his post, reversing the engine as soon as he saw the extra, has recovered from the injury sustained by him at that time, and resumed his place on the road. On the 2d of January, he was waited upon by a personal friend of the late President, who handed him a fine gold watch and chain, valued at \$700, accompanied by a letter from Mr. and Mrs. Hayes, asking him to accept it as a token of their gratitude and memento of his coolness exhibited on that occasion. The watch was made to order in Philadelphia, and on the outer case there is a monogram, "J. M. U.," and on the inside of the case is a suitable inscription, but Mr. Unglaub, having been charged not to allow it to get into the papers, the exact inscription cannot be procured.

ORGANIZATION.

THE Wilmington, Wrightsville and Jacksonville Railroad Company was organized in Wilmington, N. C., on the 29th ult. with Joseph T. Foy president. Books of subscription are to be opened along the line of the proposed road.

THE John P. King Manufacturing Company was organized at Augusta, Ga., on the 28th ult. with a capital of \$1,000,000. Charles Estes is president and C. C. Baldwin, of New York, and O. H. Sampson, of Boston, are among the directors.

THE directors of the Milford and Bay Shore Railroad Company, elected on the 5th inst., are A. J. Cassatt, John P. Green, William A. Patton, John W. Hall, Isaac Jump, George V. Massey, Bradford Murphy, and Josiah Bacon. The officers are: President, Manlove Hayes; secretary and treasurer, Wm. T. Smithers.

THE Brooklyn and Long Island Railway Company, who propose to build a railroad from the Blackwell's Island Bridge through Long Island City and Brooklyn, have elected the following directors: Richard G. Phelps, Ludwig Semler, James R. Allaben, J. Corbin, E. H. Cole, F. T. Parson, David H. Fowler, Nathaniel Biggs, W. F. Bruff, E. O. Phelps, Alexander Dugan, E. S. Keller and M. C. Earl.

THE directors of the Erie and Huron Railway Company, elected on the 29th ult. are: Hon. Arch. McKellar, J. B. Bain, Alex. Treriece, Dresden; L. H. Stevens, Chatham; F. A. Manning, A. MacNabb, Vernon Smith, Toronto. A meeting of directors was held immediately

afterwards, when Hon. Arch. McKellar was elected president of the Board, Mr. Trerice, vice president; and Mr. MacNabb, secretary.

The directors of the Baltimore and Delta Narrow Gauge Railway Company, elected on the 5th inst., are: Wm. H. Waters, James P. Streett, C. J. Moore, Stevenson Archer, Eli Tucker, E. S. Rogers, Caleb T. Taylor, S. G. Boyd, Thomas Armstrong, C. W. Hatter, G. O. Wilson, Henry R. McNally and Foulk Jones. The officers are: Wm. H. Waters president; S. G. Boyd, secretary; Thomas Armstrong, treasurer, and C. W. Hatter, auditor.

At the annual meeting of the stockholders of the Cleveland and Pittsburg Railroad Company, held at Cleveland, O., on the 4th inst., the following directors were elected: J. N. McCullough, B. F. Jones, George B. Roberts, William Bucknell, Frederick Sturges, S. J. Tilden, Charles Lanier, William C. Eggleston, E. A. Ferguson, J. V. Painter, James F. Clark and R. P. Ranney. The election of officers rests with the lessees of the road, the Pennsylvania Company.

The directors of the Dayton and Union (a branch of the Cincinnati, Hamilton and Dayton) Railroad Co., elected on the 4th inst., are: James McDaniel, P. Smith, R. D. Marshall, of Dayton; J. H. Devereux, E. R. Thomas, W. H. Poppleton, Stevenson Burke, of Cleveland; F. H. Short, John Carlisle, of Cincinnati. The officers are F. H. Short, president; Stevenson Burke, vice president; G. H. Russell, secretary and treasurer, E. B. Thomas, general manager; P. A. Hewitt, auditor.

The directors of the Topeka and Western Railroad Company are: William B. Strong of Boston, O. C. Wheeler of Topeka, G. G. Dexter, J. T. Burr, Alden Speare, C. L. Thorndyke, W. Powell Mason, Elisha Atkins, F. L. Ames, all of Boston; Sidney Dillon of New York, Gov. Veale of Topeka, E. B. Purcell of Manhattan. The capital stock is fixed at \$6,000,000, divided into 60,000 shares. This new road is to start from Topeka, Kansas, thence to the town of Eskridge, in Waubesaunsee county, and on through Morris, Dickenson, Saline, Ottawa, Lincoln and Osborne counties. Its length will be 250 miles.

The directors of the New Haven and Northampton Railroad Company, at their meeting in New Haven on the 4th inst., elected the following Board of Directors: C. N. Yeamans, George J. Brush, Daniel Trowbridge, Horatio G. Knight, William D. Bishop, George H. Watrous, Charles H. Pond, Ezekiel H. Trowbridge and E. M. Reed. The directors subsequently re-elected C. N. Yeamans president and Edward A. Ray secretary. This is the first annual meeting since the New Haven and Hartford Railroad Company purchased a controlling interest in the road. It now has a majority of the directors.

At a meeting of stockholders of the Terre Haute and Indianapolis and Terre Haute and Logansport Railroad Companies held in Terre Haute, Ind., on the 4th inst., the former elected as directors W. R. McKeen, Geo. E. Farrington, Alexander McGregor, D. W. Minshall, Henry Ross, Josephus Collet and F. C. Crawford. The directors elected W. R. McKeen

president, Geo. E. Farrington Secretary, and J. W. Cruft, treasurer. The latter elected W. R. McKeen, Geo. E. Farrington, J. B. Hager, John B. Williams and D. W. Minshall, directors, who elected W. R. McKeen president, and Geo. E. Farrington secretary and treasurer.

The following is the organization of the New York and New England Railroad Company for the year 1882: directors, Jesse Metcalf, Providence; Legrand B. Cannon, Sidney Dillon, Cyrus W. Field, Jay Gould, R. Suydam Grant, Hugh J. Jewett, Russell Sage, New York; Eustis C. Fitz, John H. French, William T. Hart, Henry L. Higginson, James H. Wilson, Boston; Frederick J. Kingsbury, Waterbury, Conn., and George B. Roberts, Philadelphia. Executive Committee, William T. Hart, Legrand B. Cannon, Jonas H. French, Jay Gould and James H. Wilson (ex officio). Finance Committee, R. Suydam Grant, Cyrus W. Field, Henry L. Higginson, James H. Wilson (ex officio). President, James H. Wilson; general manager, Samuel M. Felton; treasurer, George B. Phippen; clerk, W. Perkins.

CONSOLIDATION.

The Canadian Pacific Railway Syndicate took possession on the 1st inst. of the St. Lawrence and Ottawa Railway. It is understood that no change is to be made in the personnel of the management.

The Cleveland, Columbus, Cincinnati and Indianapolis, the Wabash, St. Louis and Pacific, the Indiana, Bloomington and Western, the Cincinnati, Indianapolis, St. Louis and Chicago, and the Pennsylvania Company, now operate, by ownership, lease or otherwise, all of the twelve separate lines centering in Indianapolis, which were originally managed by as many different companies.

The St. Louis, Arkansas and Texas Railway company of Missouri, the St. Louis, Arkansas and Texas Railway company of Arkansas, and the Missouri, Arkansas and Southern Railway company have been consolidated under the name of the St. Louis, Arkansas and Texas Railway company. This road enters Arkansas in Benton county, and is being constructed southward via Fayetteville to the Little Rock and Fort Smith railway.

The stockholders of the Pittsburg and Western and Red Bank and Youngstown Railroad companies met at Pittsburg, on the 30th ult. and consolidated, under the name of the Pittsburg and Western Railroad company. The Red Bank and Youngstown is to run from Red Bank, Pa., to State line in Lawrence county, and there connect with the Youngstown branch of the Pittsburg and Western road. This route it is claimed will be sixty-five miles shorter than yet projected for transmission of freight from East to West.

ARTICLES of consolidation were filed in the office of the Secretary of State of Illinois on the 6th inst. of the Joliet and Indiana Railway Company and the Laporte and Indiana Railway Company. The new organization is to be known as the Joliet, Indiana and Eastern Railway Company, is to have a capital stock of \$1,000,000, and the directors are to be those of the Laporte and Indiana Railway Company, name-

ly: A. W. Paige, William H. Campbell, C. E. Sargeant, John F. Wilson, C. T. Baxter, A. C. Badger and F. D. Raymond. The present president and secretary of the Laporte and Indiana are to remain officers of the consolidated company.

CONSTRUCTION.

The grading of the Harrisburg and Potomac Railroad is rapidly approaching Shippensburg. The tracks will be laid by March next.

The South Mountain Railroad Company has commenced the survey of an extension from Hunter's Run to Gettysburg and other points.

Work is progressing with rapidity on the second track in the Hoosac Tunnel. Eleven thousand feet have been laid, and the central shaft is nearly reached.

The Harbor Grace (Newfoundland) Standard says the Railway Company are purchasing in England enough railway material to build, equip and operate 160 miles of railway, including rails, carriages, locomotives, implements, etc.

The Schuylerville branch of the Boston, Hoosac Tunnel and Western Railroad was opened on the 9th inst., to Saratoga. The tonnage of the Hoosac Tunnel line increased in December 50 per cent and the earnings 25 per cent.

The Mexican government has granted a concession, with a subsidy of \$8,000 per kilometre, to Count Telefer, the agent of De Castro, for a railroad from Matamoras to Tampoco, on condition that De Castro shall acquire the branch road from Matamoras to Victoria, belonging to the Gould-Degrees concession.

THOS. L. RODGERS, vice-president of the California Southern Railroad Company, has received a concession from the Mexican government for the construction of a railroad and telegraph line from a convenient point of junction with the Sonora Railroad to San Diego. The length of the proposed road will be nearly 400 miles.

THE Bethlehem Times says that track laying has been completed from Belvidere to Danville on the Lehigh and Hudson River Railroad for a distance of thirteen miles, and coal is now being shipped to the latter place. The road is to be pushed forward as rapidly as possible, and in a few weeks will be running to Andover. It is also to be run to Portland and Bangor, in Northampton county.

CONNECTION has been made between the Danville, Olney and Ohio River Railroad and the Chicago and Eastern Illinois Railroad thus securing entrance to Chicago. The directors decided to extend the road this winter to a connection with the Louisville, New Albany and St. Louis Railroad, and during 1882 to complete the system to the Ohio river at Paducah.

CONTRACTS have been let by the Chicago and Northwestern Railway Company, to Carmichael and O'Rourke for grading, on the Callope branch to the Vermillion River, to be finished Aug. 1; on the Algoma branch, to be finished to Swan Lake by Aug. 1; to Spirit Lake, by Oct. 1; Tracy, by Nov. 1, and, on the Maple

River branch, to be finished to Sioux City by Sept. 1.

Statement of the Public Debt of the United States, January 1, 1882.

DEBT BEARING INTEREST.		
	Amount Outstanding.	Accrued Interest.
6 per cent loan, 1861-'81, continued at 3½ per cent.	\$101,827,900 00	\$1,781,974 29
6 per cent loan 1863-'81 continued at 3½ per cent	47,855,700 00	897,473 82
5 per cent funded loan of 1881.....	401,503,900 00	2,342,106 08
4½ per cent funded loan of 1891.....	250,000,000 00	937,500 00
4 per cent funded loan of 1907.....	738,772,550 00	7,387,725 50
4 per cent refunding certificates.....	575,250 00	5,752 50
3 per cent navy pension fund.....	14,000,000 00	210,000 00
Aggregate of debt bearing interest.....	\$1,554,534,600 00	\$13,502,532 19
Interest due and unpaid.....		1,331,845 66
DEBT ON WHICH INTEREST HAS CEASED SINCE MATURITY.		
	Amount Outstanding.	Interest due & unpaid.
4 to 6 per cent. old debt, 1837.	\$57,665 00	\$64,174 81
5 per cent. Mexican indemnity stock, 1846.....	1,104 91	85 74
6 per cent. bonds, 1847.....	1,250 00	22 00
6 per cent. bounty land scrip, 1847.....	3,275 00	213 06
5 per cent. Texas indemnity bonds, 1850.....	20,000 00	2,945 00
5 per cent. bonds, of 1858.....	8,000 00
5 per cent. bonds, of 1860.....	10,000 00	600 00
6 per cent. 5-20 bonds, 1862, called.....	370,700 00	8,439 32
6 per cent. 5-20 bonds, June, 1864, called.....	58,650 00	170 95
6 per cent. 5-20 bonds, 1865, called.....	77,050 00	18,897 52
5 per cent. 10-40 bonds, 1864, called.....	490,350 00	110,386 10
6 per cent. Consol. bonds, 1866, called.....	411,300 00	15,815 21
6 per cent. Consol. bonds, 1867, called.....	1,103,850 00	204,455 36
6 per cent. Consol. bonds, 1868, called.....	315,750 00	24,203 90
6 per cent. loan, Feb. 8, 1861, matured Dec. 31, 1880.....	142,000 00	6,660 00
6 per cent. funded loan 1881, called.....	3,558,750 00	90,739 38
Oregon War Debt, March 2, 1881, matured July 1, 1881.....	134,500 00	6,373 50
6 per cent loan of July 17 and Aug. 5, 1861, matured June 30, 1881.....	1,107,400 00	44,068 50
6 per cent loan of July 17 and Aug. 5, 1861, matured Dec. 24, 1881, called.....	2,763,300 05	46,636 40
6 per cent. loan of March 3, 1863, matured June 30, 1881.....	326,350 00	10,023 00
1-10 to 6 per cent. Treasury notes, prior to 1846.....	82,525 35	2,668 06
1-10 to 6 per cent. Treasury notes, 1846.....	6,000 00	206 00
6 per cent. Treasury notes, 1847.....	950 00	57 00
3 to 6 per cent. Treasury notes, 1857.....	1,700 00	99 00
6 per cent. Treasury notes, 1861.....	3,000 00	364 50
7-10 per cent. 3 years' Treasury notes, 1861.....	16,300 00	1,104 43
5 per cent. 1 year notes, 1863.....	43,225 00	2,173 35
5 per cent. 2 year notes, 1863.....	35,200 00	1,719 80
6 per cent. compound interest notes, 1863-64.....	225,260 00	45,968 07
7-10 per cent. 3 years' Treasury notes, 1864-65.....	140,900 00	4,763 87
6 per cent. certificates of indebtedness, 1862-63.....	4,000 00	253 48
4 to 6 per cent. temporary loan, 1864.....	2,960 00	244 19
3 per cent. certificates, called.	5,000 00	394 31
Aggregate of debt on which interest has ceased since maturity.....	\$11,528,265 26	\$714,985 31
DEBT BEARING NO INTEREST.		
Demand notes, 1861-62.....	\$59,920 00	
Legal tender notes, 1862-63.....	346,681,016 00	
Certificates of Deposit.....	9,590,000 00	
Coin certificates, 1863.....	5,188,120 00	
Silver certificates, 1873.....	68,675,230 00	
Unclaimed interest.....		7,256 51
Fractional currency, 1862, 1863 and 1864 \$15,451,860 92		
Less amount estimated as lost or destroyed, act of June, 21, 1879.....	8,375,934 00	
		7 075,926 92
Aggregate of debt bearing no interest.....	\$437,270,212 92	\$7,256 51

RECAPITULATION.		
	Amount Outstanding.	Interest.
Debt bearing interest in coin, viz:		
Bonds at 6 per cent., continued at 3½ per cent.	\$149,682,900 00	
Bonds at 5 per cent., continued at 3½ per cent.	401,503,900 00	
Bonds at 4½ per cent.....	250,000,000 00	
Bonds at 4 per cent.....	738,772,550 00	
Refunding certificates.....	575,250 00	
Navy pension fund, 3 p.c.	14,000,000 00	
	\$1,554,534,600 00	\$14,814,377 85
Debt on which interest has ceased since maturity.....	11,528,265 26	714,985 31
Debt bearing no int., viz:		
Old demand and legal-tender notes.....	\$346,740,936 00	
Certificates of deposit.....	9,590,000 00	
Coin & silver certificates.....	73,863,350 00	
Fractional currency.....	7,076,926 92	
	\$437,270,212 92	
Unclaimed interest.....		7,256 51
	\$2,003,333,078 18	\$15,536,619 67
Total debt, principal and interest to date, including interest due and unpaid.....	\$2,018,869,697 35	
AMOUNT IN TREASURY.		
Interest due and unpaid.....	\$1,311,845 66	
Debt on which interest has ceased.....	11,528,265 16	
Interest thereon.....	714,985 31	
Gold and silver certificates.....	73,863,350 00	
U. S. notes held for redemption of certificates of deposit.....	9,590,000 00	
Cash balance available January 1, 1882.....	156,369,534 53	
	\$253,377,980 76	
Debt, less am't in Treasury Jan. 1, 1882.....	\$1,765,491,717 09	
Debt, less am't in Treasury Dec. 1, 1881.....	1,778,285,340 65	
Decrease of debt during the month.....	\$12 793,623 56	
Decrease of debt since June 30, 1881.....	\$75,107,094 89	
BONDS ISSUED TO THE PACIFIC RAILROAD COMPANIES, INTEREST PAYABLE IN LAWFUL MONEY.		
	Amount Outstanding.	Accrued Interest not paid.
Central Pacific bonds, 1862-64.....	\$25,885,120 00	\$776,553 60
Kansas Pacific bonds, 1862-64.....	6,303,000 00	189,090 00
Union Pacific bonds, 1862-64.....	27,236,512 00	817,095 36
Cent. Branch Union Pacific bonds, 1862-64.....	1,600,000 00	48,000 00
West'n Pacific Bonds, 1862-64.....	1,970,560 00	59,116 80
Sioux City & Pacific bonds, 1862-64.....	1,628,320 00	48,849 60
Totals.....	\$64,623,512 00	\$1,938,705 34
Interest paid by the United States, \$51,467,272 02; interest repaid by transportation of mails, &c., \$14,707,886 34; interest repaid by cash payments: 5 per cent. net earnings, \$655,198 87; balance of interest paid by United States, \$36,104,186 81.		
The foregoing is a correct statement of the public debt, as appears from the books and Treasurer's returns in the Department at the close of business, December 31, 1881.		
CHARLES J. FOLGER, Secretary of the Treasury.		

The Coal Trade.

THE leading coal carrying companies make the following reports of their tonnage for the week ending December 31, and for the year to same date, compared with their respective amounts carried to the same time last year:

	Week.	1881.	1880.
Reading Railroad.....	135,993	760,344	518,231
Schuylkill Canal.....	27,655
Lehigh Valley.....	100,602	570,772	380,373
Delaware, Lackawanna and Western.....	79,037	4,359,990	3,539,086
Shamokin.....	22,241	1,088,917	930,363
Central R. R. of New Jersey.....	95,680	4,478,443	3,785,760
United R. R. of New Jersey.....	33,904	1,625,882	1,182,281
Pennsylvania Coal.....	21,699	1,427,747	1,123,674
Delaware and Hudson Canal.....	74,574	3,656,385	2,047,594
Huntingdon and Broad Top Mountain.....	9,402	518,420	417,330
Penn. and New York.....	25,365	134,898	98,806
Clearfield, Pa.....	37,818	2,401,987	1,739,872

The total tonnage of anthracite coal from all the regions for the week ending Dec. 31, as reported by the several carrying companies, amounted to 495,354 tons, against 343,183 tons in the corresponding week last year, an increase of 152,171 tons. The total amount of anthracite mined for the year is 29,361,021 tons, against

24,274,724 tons for the same period last year, an increase of 5,086,297 tons. The quantity of bituminous coal sent to market for the week amounted to 75,118 tons, against 67,916 tons, in the corresponding week of last year, an increase of 7,201 tons. The total amount of bituminous mined for the year is 4,994,061 tons, against 4,371,320 tons for the corresponding period last year, an increase of 622,741 tons. The total tonnage of all kinds of coal for the week is 570,472 tons, against 411,100 tons in corresponding week last year, an increase of 159,372 tons, and the total tonnage for the coal year is 34,355,082 tons, against 26,646,054 tons to same date last year, an increase of 7,709,038 tons. The quantity of coal and coke carried over the Pennsylvania Railroad for the week ending December 24 was 200,723 tons, of which 145,610 tons were coal and 55,113 tons coke. The total tonnage for the year thus far has been 9,017,167 tons, of which 6,651,276 tons were coal and 2,365,891 tons coke. These figures embrace all the coal and coke carried over the road east and west. The shipments of bituminous coal from the mines of the Cumberland coal region during the week ended December 31 were 33,378 tons, and for the year 1881, 2,231,453 tons, an increase of 148,750 tons over 1880. The coal was brought from the mines as follows: Cumberland and Pennsylvania Railroad—week, 27,220 tons; year, 1,930,648 tons; decrease as compared with 1880, 85,886 tons. George's Creek and Cumberland Railroad—week, 4,131 tons; year, 211,955 tons; increase over 1880, 211,955 tons. Baltimore and Ohio Railroad—week, 1,365 tons; year, 77,516 tons; increase over 1880, 11,424 tons. West Virginia Central and Pittsburg Railway—week, 1,020 tons; year, 11,257 tons; increase over 1880, 11,257 tons. It was carried to tide-water as follows: Baltimore and Ohio Railroad—increased compared with 1880, 177,318 tons; road—week, 28,141 tons; year, 1,443,755 tons. Chesapeake and Ohio Canal—week, 25 tons; year, 505,365 tons; decrease compared with 1880, 96,169 tons. Pennsylvania Railroad—week, 5,435 tons; year, 278,598 tons; increase compared with 1880, 63,866 tons. Nearly one-third of the whole shipments of the region were mined by the Consolidation Company—739,414 tons. Only seven shippers sent out over 100,000 tons. the New Central shipping 301,000 tons, and the George's Creek and Iron 255,000 tons, the others sending out less than 200,000 tons.—*Phil. Ledger*, Jan. 9.

INCORPORATION.

A CHARTER was granted on the 5th inst., in Pennsylvania to the American Combined Iron and Steel Company, of Philadelphia, with a capital of \$2,000,000. The company had been formerly chartered under the laws of New York.

THE papers of organization of the Central Pacific Railroad Company, of Wyoming, has been filed with the Secretary of Wyoming Territory by Charles Crocker, Charles F. Crocker and W. V. Huntington, incorporators and trustees. Capital stock, \$13,500,000, in 135,000 shares.

THE Mattoon and Northern Railway Com-

Secretary of State of Illinois. It is proposed pany, has filed articles of incorporation with the to construct a road from Mattoon to some point on the Illinois Midland Railroad. The principal office is to be at Mattoon. The capital stock is \$30,000, and the incorporators and first Board of Directors are Ira James, C. M. Doyle, J. G. Wright, Thomas M. Lytle and A. M. Ritter, all of Mattoon.

THE St. Augustine Construction Company has been incorporated under the general laws of New Jersey, with a cash capital of \$50,000, and has an office at Red Bank, Monmouth county. The incorporators are W. J. Lawton, of Jacksonville, Fla.; A. M. Lyon, of New York, and G. V. Sneden, of Red Bank. The object of the company is to engage in building and equipping railroads and steamboats and buying and improving lands in Florida.

THE Secretary of State of Illinois, on the 7th inst., licensed John E. Cowles, of New York City; John S. Wompoon, W. R. Jouette and Nelson C. Gridley, of Chicago; and Benjamin F. Wompoon, of Aledo, Ill., to organize the Rock Island and Southwestern Railway Company, with the principal office in Chicago. The capital of the company is \$1,000,000. The company proposes to build about 35 miles of railway and telegraph lines from Rock Island, Ill., to New Boston, Mercer County, Ill.

ARTICLES of incorporation were filed on the 6th inst., with the Secretary of State of Illinois, by the Freeport and Northwestern Railroad Company, which is to have a capital stock of \$36,000. This company proposes to construct a line from Chicago to Fox River and across through Kane County to Freeport, a distance of 145 miles. The principal office is to be at Freeport, and the incorporators and first Board of Directors are John F. Smith, Henry J. Porter, Alonzo V. Richards, M. H. Wilcoxon and Warren C. Clark, all of Freeport.

THE charter of the Topeka and Western Railway Company was filed with the Secretary of State of Kansas, on the 4th inst. The new road is to start from Topeka, thence to the town of Esdridge, in Wabaunsee County, and on through Morris, Dickinson, Saline, Ottawa, Lincoln and Osborne counties. Its length will be 250 miles. The directors are William H. Strong, of Boston; C. C. Wheeler, Topeka; Alden Speare, J. T. Burr, F. G. Dexter, S. L. Thorndike, W. Powell, Sidney Dillon, J. T. Dillon of New York; G. W. Veale, of Topeka, and E. B. Purcell, of Manhattan. The capital stock is fixed at \$6,000,000, divided in 60,000 shares.

A CHARTER was issued by the Secretary of State of West Virginia, on the 3d inst., to the Kanawha and Chesapeake Railroad Company. The capital stock is \$3,000,000. The incorporators are H. C. Parsons, H. D. Whitcomb and S. McG. Fisher, of Richmond, Va.; S. A. Miller, of Charleston, W. Va.; and Joseph S. Miller, of Wheeling. The route of the road is as follows: Commencing at or near Cannelton, in the county of Kanawha, and running by the most practicable route, to a point at or near the mouth of the South Branch of the Potomac river, in the county of Hampshire, with the right to build a branch line to a point on the

Potomac river, in the county of Mineral. Principal office, Charleston, W. Va.

ARTICLES of incorporation of the Cincinnati and St. Louis Air-Line Railroad Company were filed on the 26th ult., in the office of the Secretary of State of Illinois. The route of the proposed railroad is from East St. Louis to the Wabash river, at Palestine, or near that point, and running through the counties of St. Clair, Madison, Clinton, Bond, Marion, Fayette, Clay, Effingham, Jasper and Crawford; also a branch from the city of Effingham, Northwesterly, through Effingham and Clay counties to a junction with the Toledo, Burlington and St. Louis Railroad, at or near Holliday, in Shelby county. The principal office of the company is to be at Robinson, Crawford county. The capital stock is \$2,800,000, and the incorporators and Board

of Directors are John S. Cooper, Eric Winters, George Bass, William E. Loan and William W. Garley.

Illinois Central Railroad.

DURING the month of December, 1881, the traffic on the lines operated by this company was (estimated):

In Illinois.....	\$595,190 00
In Iowa (leased lines).....	169,964 00

Total.....	\$765,154 00
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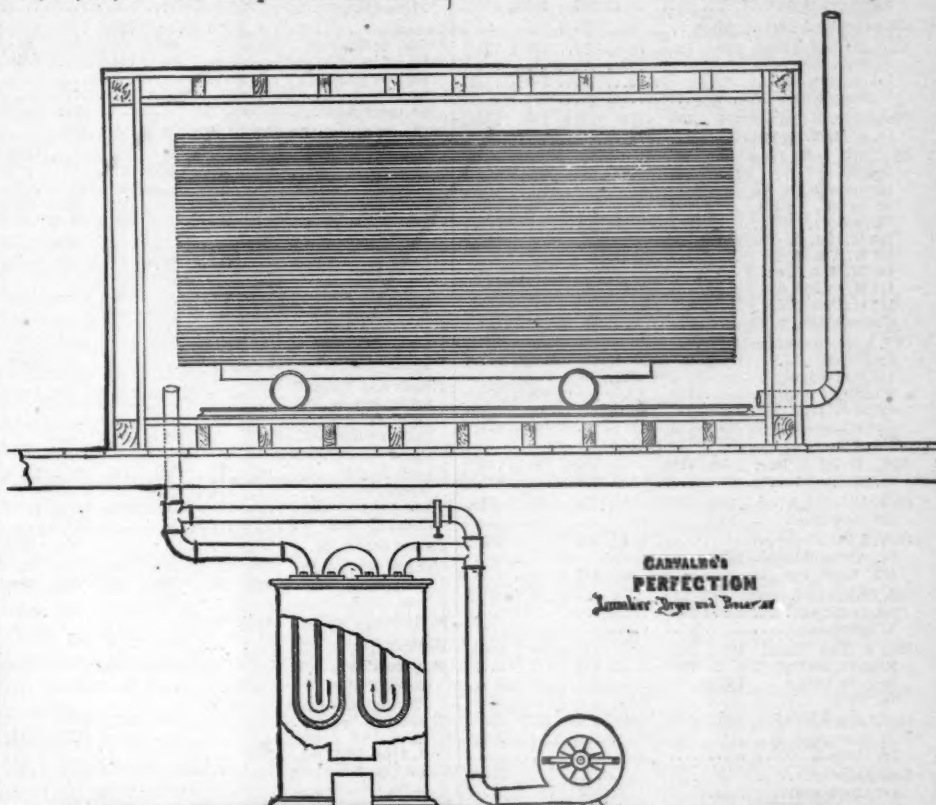
The traffic for the same month in 1880, on the same mileage, was (actual):

In Illinois.....	\$522,565 31
In Iowa (leased lines).....	150,616 33

Total.....	\$673,181 64
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During December, 1881, the land sales were 1,384.22 acres for \$8,185.32, and the cash collected on land contracts was \$9,244.98.

L. A. CATLIN, Secretary.



A Triumph in Scientific Progress.

WHEN we take a retrospective glance at the primitive efforts of our forefathers to subvert the forces of Nature to the necessities of man and contrast their now almost absolute methods with the more modern and scientific substitutions, viz: steam, gas, electricity, &c., we cannot but exclaim that man has "progressed continually" and now occupies a prominent place on the plane of civilization and enlightenment.

We are led to these remarks, by having recently witnessed the practical operations upon a very large scale of an improved apparatus invented by Professor S. N. Carvalho for heating air and superheating steam. His process not only heats atmospheric air to any temperature from 100 degrees to 800 degrees but regulates the temperature and quantity as desired. 500 to 10,000 cubic feet per minute may be transferred to great distances and utilized for drying lumber, grain, bricks, boiling sugar,

soap, beer, baking bread, &c., and heating warehouses and large buildings economically, practically and without danger. The introduction of this novel way to utilize hot air, superceding in many instances the expensive use of steam, is a public benefaction, and we respectfully call the attention of our readers, especially those interested in car building, drying grain and lumber, to a careful examination of its merits.

The apparatus is simple in the extreme and consists of sets of double cylinders placed vertically in a furnace, as per "Patent office drawing" annexed. They rest on an iron plate which also sets on a buck or iron furnace. The apparatus, as seen in operation at the establishment of Wilson & Adams, on 1st Avenue, this city, dried perfectly without checking 3500 thousand feet of lumber just from the mile in 35 hours at the nominal expense of about twenty cents per thousand feet for fuel.

Professor Carvalho's office is at No. 120 Liberty Street, New York.

New York Stock Exchange.

(Thursday's quotations follow money article.)

Closing Prices for the week ending Jan. 11.

Th.5. F.6. Sat.7. M.9. Tu.10. W.11.

Adams Express.....	145	147½	149	149
Albany and Susq.....	130	130		
1st mortgage.....				
2d mortgage.....				
American Express.....	93	92½	93½	93
Atlantic & Pac. Tel.....				
Burl. C. R. & Nor.....	99½	99½	99½	100
1st mortgage 6s.....	99½	99½	99½	100
Canada Southern.....	52½	53½	53½	54
1st mortgage guar.....	96½	96½	95½	95½
Central of N. Jersey.....	90	90½	91½	91½
1st mort. 1890.....	118½	118½	118½	119
7s, consol. ass.....			114	114
7s, convertible.....		128½		
7s, Income.....	103		101½	102
Adjustment.....	108		107	107½
Central Pacific.....	91½	91½	92½	93
6s, gold.....	113½		113½	113½
1st M. (San Joa).....	109			
1st M. (Cal. & Or.).....	103½			104
Land grant 6s.....		107	105½	106
Chesapeake & Ohio.....	25	24½	25	24½
Chicago and Alton.....	129	129½	130½	131½
Preferred.....				
1st mortgage.....				119½
Sinking Fund.....				
Chi., Bur. & Quincy.....	134	135	135½	136
7s, Consol. 1903.....		127½		128½
Chi., Mil. & St. Paul.....	106½	107	108	109½
Preferred.....	121	120	121	121½
1st mortgage, 8s.....				121
2d mort., 7 3-10s.....				
7s, gold.....				
1st M. (La. C. div).....	115½			
1st M. I. & M. div.....		114		
1st M. (I. & D. ext.).....	114	114	113½	114
1st M. (H. & D. div.).....				
1st M. (C. & M. div.).....				
Consolidated S. F.....			118½	119
Chi. & Northwestern.....	124½	124½	125	126
Preferred.....	137½	136½	138	139½
1st mortgage.....				
Sinking Fund 6s.....		109		109½
Consolidated 7s.....				123½
Consol. Gold b'd's.....	123	123		124
Do. reg.....	123	123		
Chi., R. Isl. & Pac.....	131½	131½	132½	133
6s, 1917, c.....	125		126	125½
Clev., Col. & Ind.....	78½	79½	80½	82½
1st mortgage.....				
Clev. & Pittsburg gr.....		133	134	135
7s, Consolidated.....	135½			
4th mortgage.....		112	112	
Col. Chi. & Ind. Cent.....	20½	21	21½	21½
1st mortgage.....				
2d mortgage.....				
Del. & Hud Canal.....	107½	107	106½	106½
Reg. 7s, 1891.....		112	112	
Reg. 7s, 1884.....	105			
7s, 1894.....				
Del., Lack. & Western.....	123½	124½	124½	124
2d mortgage 7s.....				123½
7s, Consol. 1907.....				
Erie Railway.....				
1st mortgage.....			126	
2d mort. 6s, ext.....				106½
3d mort. 6s, ext.....				112
4th mort. 6s, ext.....				
5th mortgage.....		113		112
7s, Consol. gold.....	129½		129½	129½
Great West. 1st mort.....				108½
2d mortgage.....		104½	104	103½
Hannibal & St. Jo.....	95	95½	95½	95½
Preferred.....	108	107½	108½	109½
8s, Convertible.....		108		111½
Houston & Tex. Cen.....		85		
1st mortgage.....	111	110		111½
Illinois Central.....	128½	129½	129½	130
Lake Shore & Mich So.....	110½	111	111½	113½
Consol. 7s.....				130
Consol. 7s, reg.....				
2d Consolidated.....	124½			
Leh. & W. B. 7s, Con.....				
Long Dock bonds.....				
Louisville & Nash.....	95½	97	98	97½
7s, Consolidated.....	121	100½		121½
Manhattan.....	51	49½	51	51
Met. Elevated.....	85½	87½	88½	89
1st mortgage.....	100	90½	100	100
Michigan Central.....	84½	85½	86½	87½
7s, 1902.....	123½		124	
M. S. & N. I. 1st, S. F.....	107½			
Morris & Essex.....	122	121½	121½	121
1st mortgage.....				
2d mortgage.....			116	
7s of 1871.....	122½	123½	123½	123½
7s, Convertible.....				
7s, Consol. 1884.....				124
N. Y. Cen. & Hud. R.....	129½	129½	129½	130½
6s, S. F. 1887.....				102½

6s, S. F., 1887.....	110		110	
1st mortgage.....			134½	
1st mortgage, reg.....	133		132½	133
N. Y. Elevated.....	106½	105½	106	105½
1st mortgage.....	115½	116½	116½	117
N. Y. & Harlem.....				
Preferred.....				
1st mortgage.....				
1st mortgage, reg.....				
N. Y., Lake Erie & W.....	39½	39½	39½	40½
Preferred.....	79	80	81½	81½
2d Consolidated.....	97½	97½	98½	98½
New 2d 6s fund.....	95		95½	96½
N. Y., N. Hav'n & Hart.....		170½	172	170½
North Mo. 1st mort.....				
Northern Pacific.....	35½	35½	36½	39
Preferred.....	73½	74½	75½	75½
Ohio & Mississippi.....	35½	35	36½	36
Preferred.....				
2d mortgage.....			120½	
Consolidated 7s.....				116
Consol. S. Fund.....				117
Pacific Mail S. S. Co.....	40	41½	41½	41½
Pacific R. R. of Mo.....				
1st mortgage.....				
2d mortgage.....				
Panama.....	195		195	
Phila. & Reading.....	64½	66	66½	66½
Pitts. Ft. W. & Chi. gtd.....			134	134½
1st mortgage.....				
2d mortgage.....				
3d mortgage.....				
Pullman Palace Car.....	125	134½	133½	135
Quicksilver Min'g Co.....		12		12½
Preferred.....	57		58½	58
St. Louis & San Fran.....	40	40		59½
Preferred.....	58½	57		58½
1st Preferred.....	104½	104		105½
St. L., Alt'n & T. H.....				
Preferred.....		88½	90½	
1st mortgage.....				
2d mort. pref.....			107	
Income bonds.....				
St. L., Iron Mt. & S.....				
1st mortgage.....			117	
2d mortgage.....	109½			108½
Toledo and Wabash.....				
1st mortgage.....			110	
2d mortgage.....				
7s, Consolidated.....	104½		104½	104½
St. Louis Division.....	107½			
Union Pacific.....	115½	116	116½	117
1st mortgage.....		114½		117½
Land Grant 7s.....		113		118½
Sinking Fund 8s.....				123½
United States Ex.....	76½			76½
Wabash, St. L. & Pac.....	35½	36½	36½	36
Preferred.....	66½	67½	68½	68½
New mort. 7s.....			114½	
Wells-Fargo Ex.....	130½	123		
Western Pacific b'd's.....				110
Western Union Tel.....	78	78½	78½	77½
7s, S. F. conv., 1900.....				77½

FEDERAL STOCKS.—

U. S. 4s, 1907, reg.....			117½	117½
U. S. 4s, 1907, coup.....			117½	117½
U. S. 4½s, 1891, reg.....	114½			
U. S. 4½s, 1891, coup.....				
U. S. 5s, 1881, reg.....				
U. S. 5s, cont'd at 3½.....	102½	102½		102½
U. S. 5s, cont'd at 3½.....	103½	100½	100½	100
Dt. of Col. 3-65s, reg.....				107
Dt. of Col. 3-65s, coup.....				107

Boston Stock Exchange.

Prices for the Week Ending Jan. 11.

Th.5. F.6. Sat.7. M.9. Tu.10. W.11.

Atch., Top. & San. Fe.....	93½	93½	94½	95½
1st mortgage.....		120	119½	
2d mortgage.....				
Land Grant 7s.....				116½
Boston & Albany.....	164		163½	163
7s reg.....				164
Boston and Lowell.....				
Boston & Maine.....	144	145	145	144½
Boston & Providence.....				162
Boa'n, Hart. & Erie's.....	66½	66½	67½	67½
Burl. & Mo. R. L. G. 7s.....				115½
Burl. & Mo. R. in Neb.....				
6s, exempt.....		115		
4s.....			86	
Chi., Burl. & Quincy.....	135½	134½	135	136½
7s.....			119	126
Cin., Sand. & Cleve (\$50).....	28	28½		27½
Concord (\$50).....				
Connecticut River.....				
Eastern.....		37½	37	38
New 4½ Bonds.....	105½	106	106½	106½
Fitchburg.....				
Kan. C. Top. & West.....				
Central Michigan.....				

N. Y. & New England.....	64	63	62½	63
7s.....	118	117½	117½	117½
Northern N. H.....	104½			105
Norwich & Worcester.....				
Ogden & Lake Cham.....				
Preferred.....				
Old Colony.....	124½	124	124½	126
Ph., Wil. & Balt. (\$50).....				
Portl'd, Saco & Ports.....				
Pueblo & Ark Val.....				
7s.....		117		
Pullman Palace Car.....	130½		134½	134
Union Pacific.....	116	116½	117	117½
6s.....			114½	
Land Grant 7s.....				110½
Sinking Fund 8s.....			119½	120
Vermont & Canada.....				
Vermont & Mass.....				
Worcester & Nashua.....		37		57½
Cambridge (Horse).....	120			
Metropolitan (Horse).....				
Middlesex (Horse).....				
Cal. & Hecla Min'g Co.....	239		240	250
Quincy.....	55	55	55	54½

Philadelphia Stock Exchange.

Closing Prices for the Week Ending Jan. 10.

W.1. Th.5. F.6. Sat.7. M.9. Tu.10.

Allegh'y Val. 7 3-10s.....	55			53½	
7s, Income.....					
Camd'n & Am. 6s, '83.....				103½	
6s, 1889.....				106	
Mort. 6s, 1889.....	114	114	114	113½	113½
Camden & Atlantic.....					
Preferred.....				29½	
1st mortgage.....					
2d mortgage.....					
Catawissa.....					
Preferred.....	53½				
7s, new.....					
Del. & Bound Brook.....					
7s.....					
Elmira & Williams'p't.....					
Preferred.....					
Hunt. & B. Top Mt.	14½	14½	14	14	
Preferred.....	26	26	25½	26	25
2d mortgage.....					
Lehigh Navigation.....	43½	43½	43½	43½	43
6s, 1884.....	105½	105½	106	105½	105½
Gold Loan.....	112		106		
Railroad Loan.....		117			
Conv. Gold Loan.....				112½	
Consol. Mort. 7s.....	117		117		
Lehigh Valley.....	61½	61½	61½	62	62
1st mort. 6s, coup.....	121	120	121	121	
1st mort. 6s, reg.....	121½				
2d mort. 7s.....		133			
Consol. mort. 6s.....		117			
Consol.mtg.6s,reg.....		118			
Little Schuylkill.....	55½				
Minehill&Sch.Hav'n.....					60
North Pennsylvania.....	60	60	60	60	60
1st mortgage 6s.....		105			104½
2d mortgage 7s.....					
Genl. mtg. 7s, coup.....					120
Genl. mtg. 7s, reg.....					
Northern Central.....	49½		48½	48½	49
6s.....		97½	97½		
Northern Pacific.....	36	35½	36	36½	35½
Preferred.....	75½	73½	74½	75½	75½
Pennsylvania R. R.	60½	60½	60½	61½	61
1st mortgage.....					
Gen'l mort.....					117
Gen'l mort reg.....					
Consol. mort. 6s.....					117
Consol. mort. reg.....					
Pa.State 6s 2d series.....					
do 3d series.....					
do 5s, new.....		115½			
do 3s.....					
Phila. & Reading.....	33½	32½	32½	33½	33½
1st mortgage 6s.....					
7s of 1893.....					70
7s, new convert.....					
Consol. mort. 7s.....				125	
Consol. mort. reg.....					
Gen'l mort. 6s.....	98½	97½	97½	98	98
Philadelphia & Erie.....			20	20	
1st mortgage 5s.....	105½			105	105
2d mortgage 7s.....					
Pittsb., Cin.&St.L. 7s.....	121			122	
Pitts., Titusv.&Buff.....	21	20½	20½	20½	20½
7s.....		102	102		102½
Schuylkill Navi't'n.....			6		
Preferred.....	13	13			
6s, 1872.....					
6s, 1882.....	89		89		
United Co. of N. J.	185			185	
Hestonville, (Horse).....	18½				
Chestnut & Wal. (do).....					
Green & Cones (do).....					

Baltimore Stock Exchange.

Closing Prices for the Week Ending Jan. 10.

W. 4. Th. 5. F. 6. Sat. 7. M. 9. Tu. 10.

Baltimore & Ohio.....	195					
6s, 1880.....						
6s, 1885.....			107½			106½
Central Ohio (\$50).....						
1st mortgage.....	108½	109			109½	
Marietta & Cincinnati.....						
1st mortgage, 7s.....				125½		125½
2d mortgage, 7s.....	104½			105½		105½
3d mortgage, 8s.....	89½	60½	61	61½	61½	61
Northern Cen. (\$50).....	50			49		
2d mort., 6s 1885.....	105	105				
3d mort., 6s, 1900.....						
6s, 1900, gold.....	113	113½		113½		
6s, 1904, gold.....	111½			111½		
Orange & Alex. 1st.....						
2d mortgage, 6s.....						
3d mortgage, 8s.....						
4th mortgage, 8s.....						
O., Alex. & Manas's 7s.....						
Pitts. & Connellsv. 7s.....	121½					121½
Virginia 6s, Consol.....	69½	67	65	65	64	63½
Consol. coupons.....	73	72½	74	73½	73½	68
10-40 bonds.....	41	40½	40	38½	38½	33½
Def'd Certificates.....	16½		17½	17	17½	
Western Maryland.....	15		15	15	15	
1st M., end. by Balt.....						
2d M., do.....						
3d M., do.....						
1st M., unendors'd.....						
2d M., end. WashCo.....						
2d M., preferred.....						105
City Passenger R.R.....						

London Stock Exchange.

Closing Prices—

	Dec. 10.	Dec. 23.
Baltimore & Ohio (sterling).....	114	116
Cairo & Vincennes com. stock.....	42	45
Do. preferred 5 per cent.....	91	93
Central of N. J. \$100 share.....	93	98
Do. Cons. Mortgage.....	116	118
Do. Adjustment Bonds.....	104	109
Do. Income Bonds.....	104	107
Det. G'd Haven & Mil. Equip bds.....	114	112
Do. Con. M. Sp. c., till '83 aft. rep. c.....	110	112
Illinois Central \$100 shares.....	137	138
Lehigh Valley Cons. mortgage.....	115	119
Louisville & Nashville mort 6s.....	105	107
Do. Sink. Fund bds (S. & N. Ala).....	104	106
Do. capital stock \$100 shares.....	108	110
N. Y. Cent. & Hud. R. mt. bds.....	136	139
Do. \$100 shares.....	140	141
Do. mort. bonds (stg.).....	123	125
N.Y., Lake Erie & West., \$100 shs.....	46	46½
Do. 6 p. c. pref. \$100 shares.....	94	96
Do. 1st Con. Mort. bds (Erie).....	130	132
Do. do. Funded Coupon bds.....	127	129
Do. 2d Consol Mort. bonds.....	103	104
Do. do. Funded Coupon bds.....	100	102
Do. Gold Income bonds.....	95	100
N.Y., Pa. & Ohio 1st mort. bonds.....	50½	51½
Do. Prior Lien bds (sterling).....	105	110
Pennsylvania, \$50 shares.....	64½	65½
Do. Con. Sink Fund Mort.....	120	122
Philadelphia & Reading \$50 shs.....	35	36
General Consol Mortgage.....	116	118
Do. Improvement Mortgage.....	104	106
Do. Gen. Mtg. '74, ex-def'd coup.....	100	102
Do. Scrip for the 6 def. ½ coup.....	95	100
Pittsb., Ft. W. & Chi. Eq. bds.....	109	105
St. L. Bridge 1st mort. gold b'd.....	126	128
Do. 1st pref. stock.....	102	104
Union Pa. Land Grant 1st. mtg.....	115	119

AMERICAN RAILROAD JOURNAL.

Financial and Commercial Review.

THURSDAY EVENING, Jan. 12, 1882.

The quotation for call loans during the day was 4@5 per cent, and at the close it was 4 per cent.

The actual rates for prime bankers' sterling were 4.81½@4.82 and 4.85½@4.85½, with cable transfers 4.86½@4.87, and prime commercial bills 4.80@4.81. The actual rates for continental bills are as follows: francs, 5.19½@5.20 and 5.24½@5.25; marks, 94½@95-16 and 95@95½; and guilders, 39½@40.

The receipts of the United States Government for the six months ending December 31, 1881, were: from customs, \$108,358,919; from Internal Revenue, \$76,230,128; from miscellaneous, \$20,566,976—total, \$205,156,023. The

expenditures during the same time were: Ordinary, \$96,615,570; interest on debt, \$38,305,374—total, \$134,920,944. For the six months ending December 31, 1880, the receipts were: from customs, \$98,636,184; from Internal Revenue, \$67,192,225; miscellaneous, \$13,755,175—total, \$179,583,584. The expenditures during the same time were: Ordinary, \$97,798,665; interest on debt, \$41,820,175—total, \$139,618,840. It will be seen that the receipts of 1881 show an increase over those of 1880, of \$25,572,439, and the expenditures a decrease of \$4,697,896; and that the surplus for the six months ending December 31, 1881, was \$70,235,079, against \$39,964,744 for the corresponding six months of 1880, an increase in favor of the period first named \$30,270,335. The reduction on the interest account will be much larger during the coming six months, for the reason that there has been a large reduction in the principal of the public debt, and for the additional reason that on all the continued five and six per cent bonds the rate of interest to be paid will be 3½ per cent. During the past six months on a portion of these bonds the higher rate of interest was paid. The large amount of surplus revenue shown by the figures given above will have considerable influence with Congress when the question of reducing taxation comes to be considered.

The Pennsylvania Sinking Fund Commissioners have accepted bids for \$9,000,000 of the new State loan, at 3, 3½ and 4 per cent, of which Drexel & Co. of Philadelphia get about \$6,000,000. By this transaction, when completed, the interest-bearing State debt will be reduced \$1,482,000.

At a meeting of the trustees of the East River Bridge, held on the 9th inst., the financial statement was presented showing that up to December 31, 1881, the total receipts were \$13,537,731.34, and total expenditures \$13,377,155.67. The cash on hand was \$160,675.67, and the cash liabilities were \$100,774.12. In December the receipts were \$201,796.54, and the expenditures \$53,926.82.

New stock to the amount of \$70,000 has been issued by the Boston, Revere Beach and Lynn Railroad Company, and taken by the stockholders and a dividend paid upon it, and the road has authority to issue \$80,000 more stock if necessary.

According to the Message of the Mayor the debt of the city of Brooklyn at the close of the year 1881 was \$42,197,000, with a sinking-fund of \$4,022,000. Of the total indebtedness, \$9,236,000 is for Prospect Park, \$10,430,000 for the East River Bridge, \$9,830,000 for the Water Works, \$7,239,000 for temporary debt, \$4,270,000 is in tax certificates. The city is paying \$1,500 a day interest on its bridge debt.

At the annual meeting of the North Pennsylvania Railroad Company on the 9th inst., it was stated that the receipts for the year were \$778,375.15—being dividends and interest on bonds paid by the Philadelphia and Reading Railroad Company.

The following gentlemen have been elected directors of the Mechanics' Banking Association: Trenor W. Park, Thomas W. Evans, Charles J. Osborn, William L. Scott, Frank Work, Cornelius F. Timpson, Joseph G. Mills,

John G. McCullough and W. J. Hutchinson. It is intended to increase the stock to \$1,000,000 and to occupy spacious rooms in the new Mills Building. It is also designed to make the bank the nucleus of a stock-clearing house.

The closing quotations on Thursday were: Albany and Susquehanna, 128@131; Adams Express, 147@149; American Express, 92@93½; Chicago, Burlington and Quincy, 136½@136½; Canada Southern, 53½@55; Chicago and Northwestern, 126@126½; do. pref., 138½@139; Chicago and Alton, 132½@133½; Central of New Jersey, 91½@92; Central Pacific, 93½@93½; Chicago, Milwaukee and St. Paul, 108½@109½; do. pref., 121½@121½; Cleveland, Columbus, Cincinnati and Indianapolis, 81½@82½; Columbus, Chicago and Indiana Central, 21½@21½; Delaware Express and Hudson Canal, —@—; Delaware, Lackawanna and Western, 124@124½; Hannibal and St. Joseph, 96@96½; do. pref., 109½@109½; Illinois Central, 132@132½; Lake Erie and Western, 35@35½; Lake Shore and Michigan Southern, 114½@114½; Metropolitan Elevated, 87½@89; Manhattan Elevated, 48½@49; Michigan Central, 88@88; New York Elevated, 105@106½; New York, Lake Erie and Western, 41½@41½; New York Central and Hudson River, 133½@133½; Northern Pacific, 35½@36; do. pref., 74½@74½; Ohio and Mississippi, 37½@37½; Panama, 195@198; Pacific Mail, 41½@41½; Texas and Pacific, 47½@47½; Union Pacific, 117½@117½; United States Express, 76½@77½; Western Union Telegraph, 78½@78½; Wabash, St. Louis and Pacific, 36½@36½; do. pref., 68½@68½; Wells-Fargo Express, 128@130.

The following quotations of sales of Railway and other securities, for the week, are in addition to those given elsewhere in our columns:

New York.—Atlantic and Pacific 1st, 96½; Atchison, Colorado and Pacific 1st, 98; Boston and New York Air Line pref., 63; Chicago and Milwaukee 1st, 118; Cedar Falls and Minnesota, 20; Chicago, St. Louis and New Orleans, 80; do. 1st consol., 115; Chesapeake and Ohio 1st pref., 36; do. 2d pref., 26; do. 1st mort., Series A, 101; do. B, 82; do. cur. int., 51½; Chicago, St. Paul, Minneapolis and Omaha, 35½; do. pref., 99½; do. consol., 98½; Central Iowa, 34; do. 1st, 115½; Chicago, Burlington and Quincy 8s, 103; Chicago, Milwaukee and St. Paul, Chicago and Pacific Western div., 94½; do. S. M. div. 1st, 103½; do. S. W. div. 1st, 103½; Columbus, Chicago and Indiana Central 1st, Trust Co. certif. ass. sup., 118; do. Income, 75; Chicago and Northwestern S. F. 5s, 101½; Chicago, St. Paul and Minneapolis 1st, 108½; Denver and Rio Grande, 68½; do. 1st consol., 103; Des Moines and Ft. Dodge inc., 75½; Denver, South Park and Pacific 1st, 103½; East Tennessee, Virginia and Georgia, 14½; do. pref., 24½; do. inc., 55½; do. 5s, 99; do. 1st, 113½; Galveston, Harrisburg and San Antonio 1st, 103; Green Bay, Winona and St. Peter, 13½; Gulf, Colorado and Santa Fe 1st, 106; Hudson River 2d S. F., 108½; Houston and Texas Central 1st, Western div. 107½; International and Gt. Northern 1st, 107½; do. coup. 6s, 90; Indianapolis, Decatur and Springfield 1st, 105; Indiana, Bloomington and Western, 47; do. 2d, 80; Jackson, Lansing and Saginaw 6s, 110½; Kansas Pacific 1st consol., 103½; do. 6s, Denver div. ass., 108½; Keokuk and Des

Moines 1st, 106; Lehigh and Wilkesbarre consol. ass., 107½; Louisville, New Albany and Chicago, 74; do. 1st, 100½; Long Island, 51½; Lake Erie and Western, 34½; do. 1st, 107½; do. Inc., 54; Louisville and Nashville consol. 6s, 1898, 121½; do. gen'l mort. 6s, 101½; Lafayette, Bloomington and Muncie 1st, 103; Lake Shore dividend bonds, 122; Manhattan Beach, 27½; Minneapolis and St. Louis, 21; do. pref., 61; Mobile and Ohio, 34; do. 1st debent., 96½; do. 2d debent., 68; do. new mort., 110; Missouri, Kansas and Texas, 37; do. consol. 7s, 106½; do. gen'l mort. 6s, 81½; do. 2d, 70½; Missouri Pacific, 100½; do. 3d, 110½; do. 1st consol.; 103; Memphis and Charleston, 74; Milwaukee, Lake Shore and Western, 48; do. 1st, 100; Michigan Central 5s, 98; Metropolitan Elevated 2d, 90; New York, Ontario and Western, 27½; Norfolk and Western, 20; do. pref., 58½; do. Gen'l mort., 103; Nashville, Chattanooga and St. Louis, 85; do. 1st, 115½; New Jersey R. R. Transp. Co., 183; New Orleans Pacific 1st, 91½; Northern Pacific 1st, 99½; Ohio Central, 23½; do. inc., 45; do. 1st, 96½; do. 1st Terminal Trust, 95½; Oregon Railway and Nav., 133; do. 1st, 106; Ohio Southern inc., 44; do. 1st, 91½; Ohio and Mississippi Springfield div. 1st, 121½; Peoria, Decatur and Evansville, 35½; do. 1st, 103½; Quincy and Toledo 1st, 102; Rochester and Pittsburgh, 25½; do. 1st, 100½; Richmond and Allegany, 36½; do. 1st, 101; Richmond and Danville, 181; do. 6s, 102½; Rome, Watertown and Ogdensburg, 20; Rensselaer and Saratoga 1st, 136; South Pacific of Missouri 1st, 104; St. Louis, Alton and Terre Haute div. bonds, 50; St. Louis and Iron Mountain, Arkansas Branch 1st, 110; do. 5s, 85; St. Paul Minneapolis and Manitoba, 113½; do. 1st, 109; do. 2d, 105½; St. Paul and Duluth pref., 70; St. Louis, Kansas City and Northern, Omaha div. 1st, 113½; do. R. E. 7s, 105; Scioto Valley 1st, 98; St. Paul and Sioux City 1st, 110; Southern Pacific of California 1st, 103½; St. Louis, Jacksonville and Chicago 1st, 116½; Texas Central 1st, 107; Toledo Delphos and Burlington, 16½; do. 1st M. L., 84; do. Terminal Trust, 95; Texas and Pacific, 47½; do. inc. L. G., 74; do. Rio Grande div. 6s, 90; Toledo, Peoria and Western 1st, 111; Utah Gen'l mort. 7s, 106; Union Pacific Collateral Trust 6s, 107; Wabash, St. Louis and Pacific, Iowa div. 1st, 90½; do. Gen'l mort. 6s, 88½; do. Chicago div., 85; do. Havana div. 1st, 95; Winona and St. Peter 1st, 107.

Philadelphia.—American Steamship Co. 6s, 107; Catawissa new pref., 53; Central Transportation, 35; Chesapeake and Delaware Canal 6s, 89; Erie and Western Transp. Co., 55; Morris Canal pref., 169; New Orleans Pacific 6s, 92; Nesquehoning Valley, 57½; Philadelphia, Germantown and Norristown, 105; Philadelphia, Wilmington and Baltimore 4s, 94½; Pennsylvania Company 4½s, 95½; Philadelphia and Reading scrip, 81; do. Inc. 7s, 98½; Pennsylvania Canal 6s, 99½; Pittsburgh 7s, Water Loan, 127; Schuylkill Nav. Boat Loan 7s, 60; Texas and Pacific consol. mort. 6s, 100; do. Rio Grande div. 6s, 90; Union and Titusville 7s, 103. The latest quotations are: City 6s, —@118; do. free of tax, 126@132; do. 4s, new, 102@109; Pennsylvania State 6s, 3d series, 100@101; do. 5s, new loan, 115@—; do. 4s, new, 107@111; Phil-

adelphia and Reading R. R., 33@33½; do. consol. mort. 7s, reg., 124½@125½; do. mort. 6s, 117@—; do. gen'l mort. 6s, coupon, 97½@98½; do. 7s, 1893, 118@125; do. new, conv., 73@77; United New Jersey R. R. and Canal, 184½@185; Buffalo, Pittsburgh and Western, 20½@20½; Pittsburgh, Titusville and Buffalo 7s, 102½@102½; Camden and Amboy mort. 6s, 1889, 113½@114; Pennsylvania R. R., 60½@61; do. general mort. reg., 123@—; do. consol. mort. 6s, reg., 119@124; Little Schuylkill R. R. 55½@55½; Morris Canal, 65@75; do. pref., 165@169½; Schuylkill Navigation, 5½@6½; do. pref., 12½@13½; do. 6s, 1882, 88½@89½; do. 1872, 107@108; Elmira and Williamsport pref., 58@60; do. 6s, 110@—; 95@— do. 5s, —; Lehigh Coal and Navigation, 43½@43½; do. 6s, 1884, 105½@106½; do. R. R. loan, 116½@117½; do. Gold Loan, 111½@112½; do. consol. 7s, 114½@117½; Northern Pacific, 35½@36½; do. pref., 75½@75½; North Pennsylvania, 59½@60½; do. 6s, 104½@105½; do. 7s, 123½@—; do. General mort. 7s, reg., 119@124; Philadelphia and Erie, 19½@20½; do. 7s, 117@120; do. 5s, 105@105½; Minehill, 60@60½; Catawissa, 14@16; do. pref., 52½@53½; do. new pref., 52½@53½; do. 7s, 1900, 120@—; Lehigh Valley 62@62½; do. 6s, coupon, 120½@121½; do. reg., 121½@122½; do. 2d mort. 7s, 133@—; do. consol. mort. 117½@118½; Fifth and Sixth streets (horse), 149@150; Second and Third, 114½@115½; Thirteenth and Fifteenth, 79½@80½; Spruce and Pine, 47½@48½; Green and Coates, 90@100; Chestnut and Walnut, 94@95; Germantown, —@70; Union, 110@125; West Philadelphia, 111@112; People's 15@15½; Continental, 100@105.

Baltimore.—Atlantic Coal, 1.10; Atlanta and Charlotte 1st, 109½; Baltimore and Ohio 2d pref., 120; Baltimore City 6s, 1890, 114½; do. 6s, 1886, 106½; do. 6s, 1900, 128; do. 5s, 1916, 121½; do. 5s, 1885, 101½; do. 5s, 1894, 116; do. 4s, 1920, 112; Columbia and Greenville 1st, 102½; Canton 6s, gold, 107½; North Carolina 4s, 83; Ohio and Mississippi, Springfield div. 1st, 121½; Richmond and Allegany, 37½; Richmond and Danville 6s, gold, 102½; do. 6s, 1890, 106½; do. 6s, 1885, 103; Virginia Midland 1st pref., 115; do. 2d pref., 115; do. 1st mort., 116½; do. 2d mort., 109½; do. 4th mort., 55; do. 5th mort., 98; Virginia Peelers, 38½; do. Peeler coupons, 32; Virginia Black scrip, 25; Wilmington, Columbia and Augusta, 109. The latest quotations are: Atlanta and Charlotte, 101@—; do. 1st, 109½@109½; Baltimore and Ohio, 195@200; do. 6s, 1885, 106½@107; Baltimore City 6s, 1890, 114@114½; do. 5s, 1885, 101@105; do. 5s, 1894, —@116½; do. 5s, 1916, 121@—; do. 4s, 1920, —@112; Columbia and Greenville 1st, 102½@103½; Central Ohio 1st, 110@111; Marietta and Cincinnati 1st, 125½@125½; do. 2d, 105@106; do. 3d, 61@61½; Northern Central, 48½@—; do. 6s, 1885, 106½@—; do. 6s, gold, 1900, 113@—; do. 5s, 1926, —@97½; Norfolk and Western pref., 57@—; Ohio and Mississippi, Springfield div. 1st, 121½@121½; Pittsburgh and Connellsville 7s, 121@121½; Richmond and Danville, 180@195; Virginia Midland 5th, 97@99; Virginia consols., 63½@63½; do. 10-40s, 38½@39.

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The transfer books will be closed at 3 o'clock P. M. on Saturday, the 31st instant, and will be reopened on the morning of Saturday, the fourth day of February next.

E. D. WORCESTER, Treasurer.

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E. H. MILLER, Jr., Secretary.

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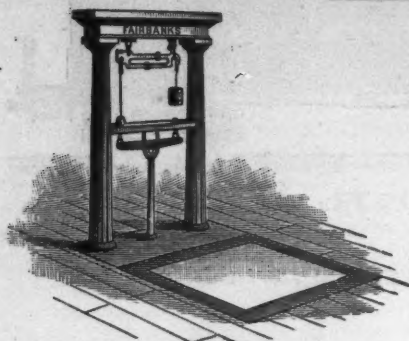
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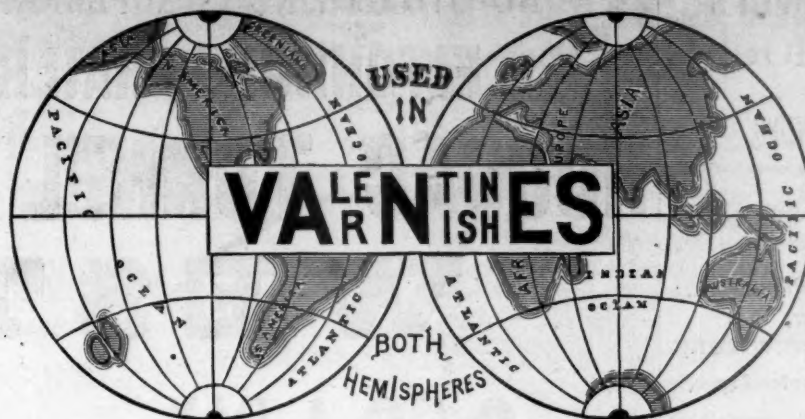
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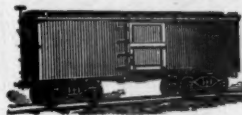
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